MARWICKCYTHEREIS, A NEW OSTRACOD GENUS FROM THE TERTIARY OF NEW ZEALAND

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(Received 21 October, 1991; revised and accepted 29 January, 1992)

ABSTRACT

Whatley, R.C. & Millson, K.J. (1992). *Marwickcythereis*, a new ostracod genus from the Tertiary of New Zealand. *New Zealand Natural Sciences* 19: 41-44.

The new trachyleberid genus *Marwickcythereis* is described from the Tertiary of both onshore and off-shore New Zealand. The genus is based on *Cythereis marwicki* Hornibrook, 1952 and a new species, *M. ordotormenta* from the Palaeocene and Eocene off-shore.

KEYWORDS: *Marwickcythereis* - Tertiary - New Zealand - fossil - new taxa - Ostracoda.

INTRODUCTION

There are considerable numbers of endemic plants and animals, both marine and terrestrial, in and around New Zealand and Australia, particularly the former. This reflects the long time interval during which they have been isolated since, after the break up of Gondwanaland and the dispersal of its constituent continental fragments, they reached their present day positions. Not least among the animal goups with endemic taxa are the Ostracoda and the present new genus *Marwickcythereis* is one of a number which have been described from the area (*eg.* Ayress & Swanson 1991, Whatley *et al.* in press).

SYSTEMATICS

Type specimens are deposited in the collections of the Department of Palaeontology, Natural History Museum, London to which the catalogue numbers prefixed OS refer. Other figured specimens, prefixed KK/SWP/ are housed in the Millson collection in the Micropaleontology Museum, Institute of Earth Studies, UCW, Aberystwyth.

Class: Ostracoda Latrielle, 1806
Order: Podocopida G.W. Müller, 1894
Suborder: Podocopina Sars, 1866
Superfamily: Cytheracea Baird, 1850
Family: Trachyleberididae Sylvester-Bradley, 1948

Genus: ***Marwickcythereis*** Gen. nov.

Type species: Cythereis marwicki Hornibrook, 1952.

Derivatio nominis: Derived from the species name *marwicki* of the genotype.

Diagnosis: A large subovate to subrectangular trachyleberid genus with strongly rounded anterior margin and rounded to truncated posterior; anterior margin distinctly thickened at mid-height. Dorsal margin straight; ventral margin convex. End margins with denticulations which encroach onto the ventral margin; large posteroventral and posterodorsal tubercles. Free margins with distinct rims. Surface strongly and regularly reticulate; muri smooth, with conjunctive nodes which are perforate. Sighted or blind. Large tubercular nodes form sub-alar row ventrolaterally. Avestibulate, Hemiamphidont, with strongly lobed to dentate terminal elements in the right valve hinge; median element smooth. Four adductors with a V-shaped frontal, the 2nd from dorsal adductor is elongated. Sexually dimorphic; males more elongate than females.

Remarks: Marwickcythereis at present comprises

two species, the type species and *M. ordotormenta* sp. nov. Hornibrook (1952) described *Cythereis marwicki* from the Middle and Upper Eocene of onshore New Zealand. The present authors have subsequently encountered it off-shore in Middle Eocene strata from a number of DSDP sites. The new species is from the Middle Palaeocene to Middle Eocene, also off-shore.

Marwickcythereis differs from *Echinocythereis* Puri, in shape, the nature of its ornament and because the latter has a subdivided frontal scar. *Wichmanella* Bertels is more rectangular, is straight ventrally rather than convex and has a strongly locellate/denticulate median hinge element while, despite the illustrations of Hornibrook (1952), that of *Marwickcythereis* is smooth. The eye tubercle of *Wichmannella* is also more pronounced. *Pistocythere* Gou differs in shape, ornament, and in details of hingement and musculature.

As will be revealed in detail in a subsequent publication, in Palaeogene strata off-shore New Zealand, *Marwickcythereis* assumes a considerable importance as a biostratigraphically useful marker. *M. marwicki* is an index species for the Middle Eocene Heretaungan, while *M. ordotormenta* is a Lower Eocene zone fossil. In neither case, off-shore, are the ostracod zones which they typify exactly related to their total ranges.

Marwickcythereis marwicki (Hornibrook), 1952 (Fig 1, A-D).

1952 *Cythereis marwicki* sp. nov. Hornibrook: p. 36, pl. 4, Figs. 62-64.

Material: Apart from the original material described by Hornibrook, the authors have encountered an additional 30 adult and 371 juvenile specimens of the species.

Diagnosis: Large, subovate to subrectangular, end margins rounded and with marginal rims and denticles. Blind or sighted. Surface reticulate with shallow, predominantly quadrate fossae, bounded by smooth, narrow muri with perforate conjunctive tubercles at each intersection. Ventro-lateral rib defined by tubercles of moderate size.

Remarks: Hornibrook originally described the species from the Palaeogene of New Zealand, the authors records are from the Middle Eocene off-shore New Zealand. The type locality of the species is the Maheno Marl, Oamaru, Runangan Stage, uppermost Eocene. The type material has a small eye tubercle and internal ocular sinus; these are entirely lacking in the off-shore material studied by the authors. However, we are convinced that they represent shallow and deep (> 500 m) water populations of the same species. The off-shore material is slightly larger than the types, reflecting the colder water environment. The species occurs in our offshore material most commonly associated with such genera as *Argilloecia, Krithe, Agulhasina, Cytherella, Cytheropteron, Aversovalva.* As noted by Hornibrook (1952), the species has rather different associates in the shallower water environments onshore New Zealand, such as *Trachyleberis, Bradleya* (with eyes), *Quadracythere, Cytheropteron, Bythoceratina etc.*

Dimensions: (mm)	Length	Height
Female LV, KK/SWP/493	0.89	0.59
Male LV, KK/SWP/494	0.94	0.54
Male RV, KK/SWP/495	0.93	0 52
Female LV, KK/SWP/496	0.89	0.55

Marwickcythereis ordotormenta sp. nov. differs in being sighted (it has a large eye tubercle with a correspondingly large internal ocular sinus), more elongate, secondarily reticulate and in bearing a row of vento-lateral spines which are much more prominent.

Distribution: The authors have recorded the species from the following DSDP sites:
Site 277, Campbell Plateau, Cathedral Depression, lat. 52°57.75S, long. 166°11.48E, present day water depth, 1214 m. Bortonian, Herataungan, Middle Eocene. Site 207, hole 207A, southern Lord Howe Rise, lat. 36°57.75S, long. 165°26.06 E, present day water depth 1389 m, Bortonian, Porangan and Heretaungan, Middle Eocene.

Marwickcythereis ordotormenta sp. nov.
(Fig. 1, E - J)

Derivatio nominis: L. A tier of cannons. With reference to the ventro-lateral cannon-like tubercles of this species.

Diagnosis: A large to very large subrectangular species of *Marwickcythereis,* with large eye tubercle and internal ocular sinus, secondary reticu-

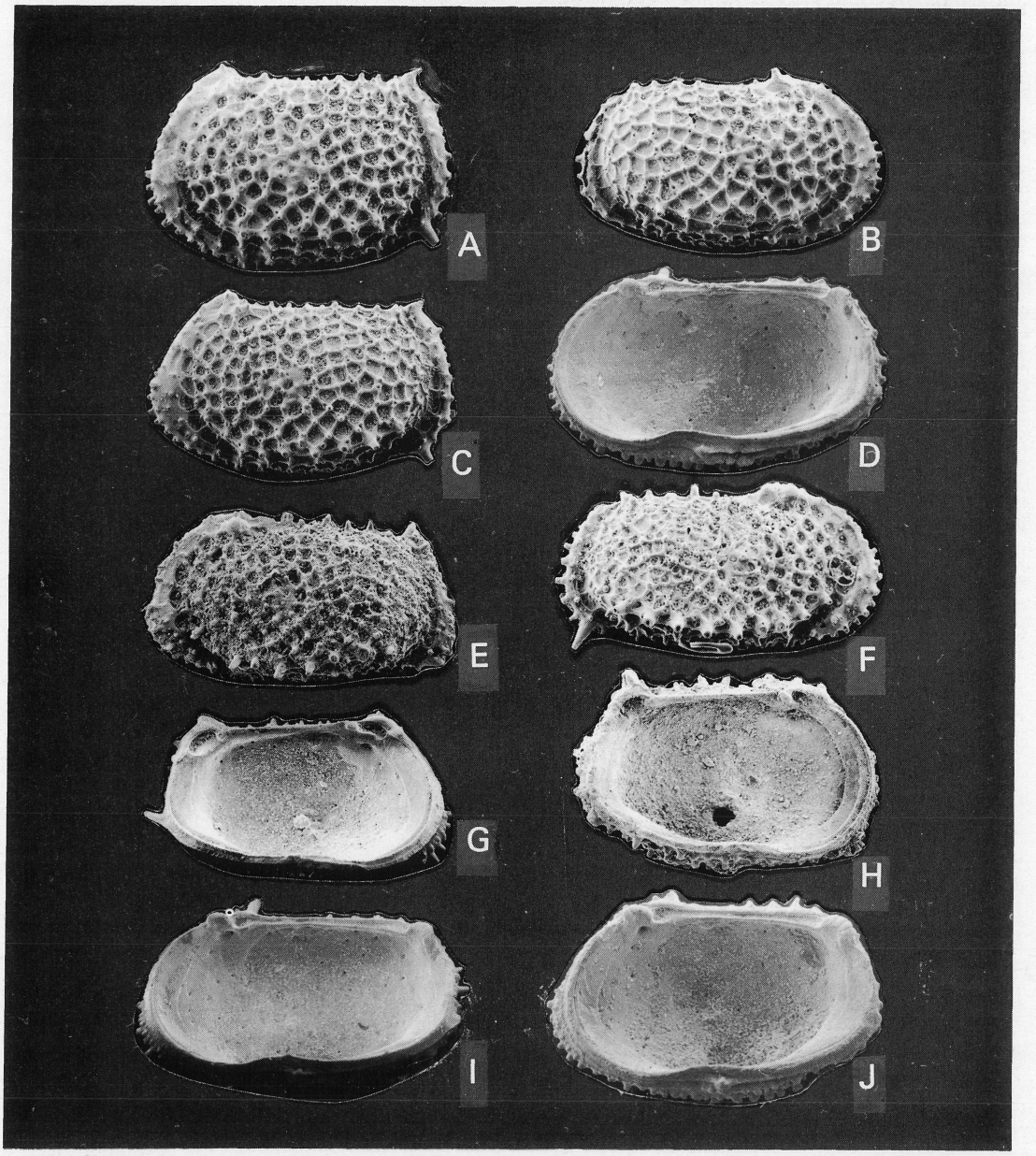

Figure 1. SEM Micrographs. See text for dimensions.

A-D. *Marwickcythereis marwicki* (Hornibrook, 1952). (A) female left valve, KK/SWP/493, external lateral view; (B) male right valve, KK/SWP/495, external lateral view; (C) male left valve, KK/SWP/494, external lateral view; (D) male right valve, KK/SWP/495, internal view. E-J. *Marwickcythereis ordotormenta* gen. et sp. nov. (E) paratype male left valve, OS 13762, external lateral view; (F) holotype male right valve, OS 13761, external lateral view; (G) female left valve, KK/SWP/499a, internal view; (H) paratype female left valve, OS 13763, internal view; (I) male right valve, KK/SWP/499b, internal view; (J) female right valve, KK/SWP/499c, internal view.

All specimens of *Marwickcythereis marwicki* are from DSDP Site 207, hole 207A.

lation medianly and very large perforate spines ventro-laterally.

Holotype: Male RV, OS 13761.

Type locality and horizon: DSDP Site 207, southern Lord Howe Rise, hole 207A, core 26, section 4, interval 135-140 cm, Waipawan Stage, Upper Palaeocene.

Material: 18 adults, 583 juveniles.

Description: Large to very large, subrectangular. Thick-shelled. Tumid medianly, with strongly compressed end margins. Anterior margin well rounded; extremity below mid-height. Posterior margin subtruncated with subventral extremity. Dorsal margin straight; slightly overhung by surface ornament. Ventral margin gently convex. All free margins with spinose denticles; postero-ventral spine prominent in RV. Maximum length below mid-height; maximum height at the anterior cardinal angle; maximum width in posterior third. Ornament reticulate and spinose, with strong marginal rims. Reticulae comprising fossae of moderate depth, generally polygonal and surrounded by smooth muri at whose intersections perforate, conjunctive, spinose tuberculae arise; some spines long enough to project above dorsal margin. Posteromedian area secondarily reticulate. The ventro-lateral rib is defined by a number of very strong, perforate spines. Eye tubercle large and prominent, with large internal ocular sinus. Internal features as for genus. Some 25 radial pore canals occur anteriorly and 15 posteriorly.

Dimensions: (mm)	Length	Height
Holotype Male RV, OS 13761	1.06	0.54
Paratype Male LV, OS 13762	1.00	0.54
Paratype Female LV, OS 13763	0.99	0.58

Remarks: This species is thought to be to ancestral to *M. marwicki,* some populations of which are sightless and which migrated down slope. This phenomenon has been described in respect of both *Bradleya* and *Poseidonamicus* in the same region (Whatley *et al.* 1983). In the type sample, this species is the second most dominant member of a fauna of 23 genera and 35 species. Its most common associates are *Agulhasina, Xestoleberis, Argilloecia, Cytherella, Cytheropteron, Trachyleberis etc.*

Distribution: This species has been found at the following DSDP sites and intervals:
DSDP Site 277, Campbell Plateau, lat. 52°13.43S, long. 166°11.48E, present-day water depth 1214 m. Waipawan - Heretaungan, Middle Palaeocene to Middle Eocene.
DSDP Site 207, southern Lord Howe Rise, lat. 36°57.75S, long. 165°26.06E, present day water depth, 1389 m. Waipawan-Mangaorapan, Upper Palaeocene to Lower Eocene.
DSDP Site 208, northern Lord Howe Rise, lat. 26°06.61, long. 161°13.27E, present day water depth 1545 m. Waipawan, Middle Palaeocene.

ACKNOWLEDGEMENTS

The senior author wishes to acknowledge the kindness of Michael Ayress in reading the manuscript and suggesting a number of improvements, similar thanks are due to two anonymous referees. Alicia Moguilevsky is thanked for assistance in the technical aspects of the preparation of the paper.

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